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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/558,121	04/25/2000	Christopher Peter LaRosa	CS10088 P01	9421

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Motorola Inc
Personal Communications Sector
Intellectual Property Department (PJB)
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EXAMINER

ELALLAM, AHMED

ART UNIT PAPER NUMBER

2662

DATE MAILED: 07/01/2004

13

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/558,121

Applicant(s)

LAROSA ET AL.

Examiner

AHMED ELALLAM

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 5-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,2,5-12,15 and 32-34 is/are allowed.
- 6) ☒ Claim(s) 13,14,18-20,23,25-27 and 30 is/are rejected.
- 7) ☒ Claim(s) 16,17,21,22,24,28,29 and 31 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>April 12, 2004</u> . (#10) | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This communication is responsive to Amendment filed on April 12, 2004. The Amendment has been entered.

Claims 1, 2, 5-34 are pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hutchinson, US (5,790,589) in view of Storm et al, US (6,144,649).

Regarding claim 13, with reference to figures 4, Hutchinson discloses a method/system for acquiring a pilot signal comprising:

Receiving a spread spectrum signal at antenna 42, the received signal is despread and multiplied by a PN code generator 60, see column 6, lines 65-67 and column 6, lines 1-24. (Claimed received signal);

A searcher controller that provides a PN offset to the PN generator 60, see column 6, lines 25-24. (Reads on selecting a pseudo-random noise (PN) offset for a PN sequence);

A plurality of accumulators 48, 50, responsive to signals from searcher controller 58 for resetting, latching and setting the summation period, in connection with squaring means 52 for squaring each of the sums and adds the squares together, the sum of the squares is provided by squaring means 52 to non-coherent combiner accumulator 54, the non-coherent accumulator 54 determines an energy value from the output of squaring means 52. Further, Hutchison discloses that accumulator 54 provides the energy signal to comparison means 56 which compares energy value to predetermined thresholds supplied by searcher controller 58, and the results of each of the comparisons is then fed back to searcher controller 58. Search controller 58 examines the comparisons and determines whether the window contains likely candidates for the correct offset, see column 6, lines 35-50. Hutchison also disclose that the iterative searching method is repeated with alternating advanced and retarded search windows until either the actual location of the pilot channel in the PN code sequence is detected or a predetermined number of iterations has occurred, see column 3, lines 54-63. (Claimed interrupting the correlation when correlation energy at least equal to a predetermined threshold is produced; and choosing a PN sequence timing based upon the PN sequence and a PN offset that produce a full correlation energy at least equal to the predetermined threshold).

The difference between the invention of claim 13 and the teaching of Hutchinson is that Hutchinson correlates samples as they arrive without explicitly disclosing storing samples of the received signal to be correlated.

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However, Storm in the same field of pilot acquisition techniques, discloses a sample buffer 202 for storing samples of a received signal, see column 6, lines 14-19, wherein the samples are correlated using PN offsets and producing a correlation energy, see column 6, lines 59-67 and column 7, lines 1-16.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to store the received signal of Hutchinson in accordance with the teaching of Storm so that window search size of Hutchinson can be adaptively applied to the same received signal. The advantage would be using different simultaneous searching window sizes in acquiring the pilot signal of Hutchinson resulting in a fast synchronization between the mobiles and the base station of Hutchinson.

Regarding claim 14, Examiner interpreted the feature of repeating with alternating advanced and retarded search windows until either the actual location of the pilot channel in the PN code sequence is detected or a predetermined number of iterations has occurred (see column 3, lines 54-63) as being the claimed the step of choosing a PN sequence timing in response to step of interrupting the correlation.

2. Claims 18, 19, 23, 25, 26, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Storm et al, US (6,144,649) in view of Hulbert, US (6,069,915).

Regarding claims 18 and 19, with reference to figures 1 and 2, Storm discloses a method/system for acquiring a pilot signal comprising:

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A sample buffer 202 for storing samples of a received signal, see column 6, lines 14-19, (Claimed a buffer to store a plurality of samples of a received signal);

A correlator 204 coupled to the sample buffer for correlating samples from the sample buffer using PN offsets and producing a correlation energy, see column 6, lines 59-67 and column 7, lines 1-16; (claimed a correlator coupled to the buffer and operable to correlate at least a portion of the same stored samples with a PN sequence at each of a plurality of different PN offsets to produce corresponding correlation energies);

A logic 254 (claimed controller) coupled to the correlator and compares the correlation result to a predetermined threshold, see column 7, lines 17-24. (Reads on a controller coupled to the correlator and operable to interrupt the correlator when the PN sequence at a particular PN offset produces a correlation energy at least equal to an energy threshold).

The difference between Applicants claim 18 and Storm is that Storm interruption does not refrain the correlator from correlating portions of the samples with further PN sequences of different PN offset upon a determined threshold. (Column 7, lines 10-16).

However, Hulbert discloses correlating received signal samples with a local PN generation and that completing the correlation once a predetermined threshold is found, see column 2, lines 61-67 and column 3, lines 3. (Claimed interrupt the correlator from correlating portions of the samples with further PN sequences of different PN offset, when the PN sequence at a particular PN offset produces a correlation energy at least equal to an energy threshold).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the method of Storm by configuring his logic circuit (claimed controller) to not further correlations upon a determined threshold, using the correlation-complete step taught by Hulbert so that pilot synchronization can be achieved with less power consumption at Storm's mobile terminal.

Regarding claims 25 and 26, with reference to figures 1 and 2, Storm discloses a CDMA cellular system comprising:

A base station 102 for transmitting a pilot signal having a particular time alignment;

A cellular telephone 104 operable to receive representations of pilot signal, the cellular telephone comprising:

A sample buffer 202 for storing samples of a received signal, see column 6, lines 14-19,

A correlator 204 coupled to the sample buffer for correlating sample buffer using PN offsets and producing a correlation energy, see column 6, lines 59-67 and column 7, lines 1-16;

A logic 254 (claimed controller) coupled to the correlator and compares the correlation result to a predetermined threshold, see column 7, lines 17-24. (Reads on a controller coupled to the correlator and operable to interrupt the correlator when the PN sequence at a particular PN offset produces a correlation energy at least equal to an energy threshold).

The difference between Applicants claim 25 and Storm is that Storm interruption does not refrain the correlator from correlating portions of the samples with further PN sequences of different PN offset. (Column 7, lines 10-16).

However, Hulbert discloses correlating received signal samples with a local PN generation and that completing the correlation once a predetermined threshold is found, see column 2, lines 6167 and column 3, lines 3. (Claimed interrupt the correlator from correlating portions of the samples with further PN sequences of different PN offset, when the PN sequence at a particular PN offset produces a correlation energy at least equal to an energy threshold).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the method of Storm by configuring his logic circuit (claimed controller) to not further correlations upon a determined threshold, using the correlation-complete step taught by Hulbert so that pilot synchronization can be achieved with less power consumption at Storm's mobile terminal.

Regarding claims 23 and 30, with reference to figure 2, Storm discloses a PN generator 205 coupled to the sample buffer and to the correlator 224 to generate the PN sequence at each of plurality of PN offsets. See column 5, lines 29-37 and column 6, lines 51-58.

3. Claims 20 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Storm in view of Hulbert as applied to respective claims 20 and 25 above, and further in view of Chen, US (5,881,058).

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Regarding claims 20 and 27, Storm in view of Hulbert discloses all the limitations of respective parent claims 18 and 25, except they don't disclose a memory for storing a predetermined number of highest correlation energies and corresponding PN offsets.

However, Chen discloses in the same field of endeavor, with reference to figure 5, a buffer 422 for storing a predetermined number of highest correlation energies and their corresponding PN offsets. See column 6, lines 62-67 and column 7, lines 1-22.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to implement the buffering mechanism of storing PN offset with corresponding correlation energies as taught by Chen in Storm/Hulbert system so that the correlator of Storm/Hulbert would have less processing to do by retrieving the values of correlation energies stored in lieu of calculating them.

Allowable Subject Matter

4. Claims 1, 2, 5-12, 15, 32-34 are allowed.

Claims 16, 17, 21, 22, 24, 28, 29 and 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

5. Applicant's arguments with respect to claim 13, 14, 18, 19, 23, 25, 26 and 30 have been considered but are moot in view of the new ground(s) of rejection.

6.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AHMED ELALLAM whose telephone number is (703) 308-6069. The examiner can normally be reached on 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kizou Hassan can be reached on (703) 305-4744. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AHMED ELALLAM
Examiner
Art Unit 2662
25 June 2004



JOHN PEZZLO
PRIMARY EXAMINER